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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/044,701	11/09/2001	Hans-Ueli Roeck	34152	7952

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EXAMINER	
LEE, PING	

ART UNIT	PAPER NUMBER
2615	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/044,701	ROECK ET AL.	
	Examiner	Art Unit	
	Ping Lee	2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 January 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 1-12, 1/19, 2/19, 3/19, 4/19, 5/19, 6/19, 7/19, 8/19, 9/19, 10/19, 11/19, 12/19, 20-22 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Killion et al (hereafter Killion '258) (US006101258A) in view of Killion (US005577511A) (hereafter Killion '511).

Regarding claim 24, Killion '258 discloses method for operating a hearing device in which one of several possible hearing programs is selected at a given time in response to a bi-level switching state value (using Figs. 9-11 as an example, the claimed "bi-level switching state value" reads on one state value output from the microphone representing by increasing ambient noise, and another state value output from the microphone representing decreasing ambient noise; col. 8, lines 40-49; or one state value output from the microphone for shifting to omnidirectional response, the other state value output from the microphone for shifting to directional response) comprising the steps of:

providing a microphone (15 for example);

providing transfer functions (each transfer function is the ratio between the output of the hearing aid and the input at the microphone 15; since the gain is changed based on the control from VC2, there are a plurality of transfer functions) between the microphone (15) and a hearer, the transfer functions having parameters (defined by the

gain on the path) and corresponding with the programs; providing a filter unit (205) having a timed response ("a timed response" reads on the actual time that is needed to generated output by an electronic element) to the bi-level switching state value and;

initiating a change in at least one of the parameters in response to said timed response (the response from the rectifier is timed response) from a momentary value (for example, from a complete omnidirectional response) to a desired value (to reach the complete directional response) in a time-based manner (as shown in Fig. 11, the change from omni-directional response to directional response is being performed gradually, therefore, the change is inherently performed in a time-based manner; col. 9, lines 14-25).

Regarding claim 20, Killion '258 discloses a hearing device, whereas at least one smooth transition filter unit (205) having a timed response ("a timed response" reads on the actual time that is needed to generated output by an electronic element) to bi-level switching state is provided which filter unit generates time-based transitions of parameters which are affected by hearing program switching in response to a bi-level switching state value (using Figs. 9-11 as an example, the claimed "bi-level switching state value" reads on one state value represented increasing ambient noise, and another state value representing decreasing ambient noise; col. 8, lines 40-49), in that values of the parameters (determined by the gain of the transistors) to be changed by a hearing program switching are passed through the filter unit in order to obtain a smooth transition (col. 9, lines 15-25) from a momentary to a desired parameter value (as shown in Fig. 11).

Regarding claims 1, 2 and 7-12, Killion discloses a method for operating a hearing device in which one of several possible hearing programs (the complete omnidirectional response, the complete directional response, and in-between these two) is selected at a given time in order to adjust to a momentary acoustic surround situation (ambient noise), in that parameters of a transfer function (defined by the gain in the path from the microphone to the output) provided between a microphone and a hearer are changed, whereas the parameters to be changed according to the hearing program switching are adjusted from a momentary value (for example, from a complete omnidirectional response) to a desired Value (to a complete directional response) in a smooth manner (gradual changes as shown in Figs. 10 and 11) in response to a filter unit, the filter unit having a timed response (the claimed “timed response” reads on the amount of time that is required to generate an output; any electronic device will need a certain amount of time of generate an output) to a bi-level switching state value (the claimed "bi-level switching state value" reads on one state value representing by increasing ambient noise, and another state value representing decreasing ambient noise; col. 8, lines 40-49; or one state value for shifting to omnidirectional response, the other state value for shifting to directional response), the timed response (the response from rectifier) controlling the changes.

Regarding claims 3 and 4, the claimed "a step response of a low-pass filter" reads on the response of the logarithmic rectifier.

Regarding claims 5 and 6, the claimed "ramp generator" reads on the logarithmic rectifier.

Regarding claims 1/19, 2/19, 3/19, 4/19, 5/19, 6/19, 7/19, 8/19, 9/19, 10/19, 11/19 and 12/19, for example Killion discloses the scaling.

Killion '258 discloses a logarithm rectifier, but fails to show the actual components for forming this rectifier that define the time constant for charging the rectifier or discharging the rectifier (this define how smooth and gradual the slopes of the VC1 and VC2 are). Killion '511 teaches the actual components, including the resistors, diodes, transistors and capacitor for the generating the output from the rectifier. On col. 5, lines 13-23, Killion '511 clearly states that the time constant is determined by the capacitor and the resistor and this time constant defines the attack (the slope is in increment) and release time (the slope is in decrement). At the time of the invention was made, there were numerous designs for the logarithmic rectifier. Killion '511 just teaches one of many. Thus, it would have been obvious to one of ordinary skill in the art to modify Killion '258 by using actual electronic elements for implementing the logarithmic rectifier, such as studying the one as taught in Killion '511, in order to control how smoothly and gradually the hearing program is being switched in a timed manner.

Regarding claim 21 and 22, the claimed low-pass characteristics and the ramp generator reads on the function provided by the logarithmic rectifier.

3. Claims 13-18, 13/19, 14/19, 15/19, 16/19, 17/19 and 18/19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Killion '258 in view of Killion '511 as applied to claims 1-12, 1/19, 2/19, 3/19, 4/19, 5/19, 6/19, 7/19, 8/19, 9/19, 10/19, 11/19, 12/19, 20-22 and 24 above, and further in view of Ruegg (US 3,875,349).

Regarding claims 13-18, 13/19, 14/19, 15/19, 16/19, 17/19, and 18/19, Killion fails to teach manual intervention in the embodiment as illustrated in Fig. 9. Killion suggests the manual intervention in another embodiment as shown in Fig. 1. Ruegg teaches that a hearing aid not only need automatic control of the hearing program, it also needs manual control that would enable the user to have control over his/her hearing aid when he/she has a desire to change the program immediately (col. 3, lines 36-41). Thus, it would have been obvious to one of ordinary skill in the art to modify Killion's system in view of Ruegg by having a manual intervention over an oversteer unit in order to enable the hearing aid's wearer to have a manual control over the hearing program when he/she wants have a forced change.

Response to Arguments

4. Applicant's arguments filed 1/25/08 have been fully considered but they are not persuasive.

Applicant's argument that Killion fails to teach a filter unit having a timed response is not persuasive. It is true, mathematically, that a logarithmic amplifier generates an output as a function of input signal amplitude regardless of the time. However, when this is done using actual electronic components, such as resistor(s), capacitor(s) and/or inductor, the output generated by the logarithmic amplifier will be in a timed manner depending on the time constant defined by the electronic components. Killion discloses an analog circuit in various embodiments. The logarithmic amplifier in Killion inherently is composed on actual electronic components, such as resistor(s),

capacitor(s) and/or inductor. The time constant defined by those electronic components will determine how fast the VC1 will increase or decrease. Referring back to Killion's actual text, on col. 3, lines 37-39, 65-66; col. 4, lines 4-5, col. 9, line 11; and col. 9, lines 14-25, Killion clearly discloses that the hearing programs are changed in a smoothed or gradual manner. A smooth or gradual change will only take place when it is done in continuous small steps for a period of time, so the ear will not hear the sharp increase/decrease sound level (Killion called the noise generated by abruptly changed hearing program as click noise or pop noise on col. 3, line 39). As shown in Fig. 10, the increment in VC1 will have the same rate of decrement in VC2. Fig. 10 shows the ramp responses of VC1 and VC2. Fig. 11 shows the ramp response of RS1 and RS2, these determine the outputs from the omni-directional microphone and the directional microphone. The output from the logarithmic rectifier is a DC signal with the AC component being removed. This corresponds to the function of a low pass filter.

Applicant's second argument that Killion fails to show a bi-level switching state value controlling the time response filter is also not convincing. First of all, the claimed time response filter reads on the rectifier in some embodiments or logarithmic rectifier disclosed in Killion. This has been extensively discussed above. The input of the rectifier or logarithmic rectifier controls the output. The term "value" means an amount. The claimed bi-level switching state value could read on many interpretations. One is in a situation when the environment has bi-level ambient noise (such as no noise at a time, and full of noise at another time), so the microphone generates bi-level output represents the bi-level switching state value to change the hearing program from

omnidirectional response to directional response. Second one is that the microphone generates an output with decreasing amplitude, or increasing amplitude. Third one is that the value of the microphone signal will shift the hearing program to omnidirectional response, the other value of the microphone signal will shift the hearing program to directional response.

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ping Lee whose telephone number is 571-272-7522. The examiner can normally be reached on Monday, Wednesday and Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian C. Chin can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ping Lee/
Primary Examiner, Art Unit 2615

pwl